M·A·P·S Digest

Official Publication of
Mid-America Paleontology Society

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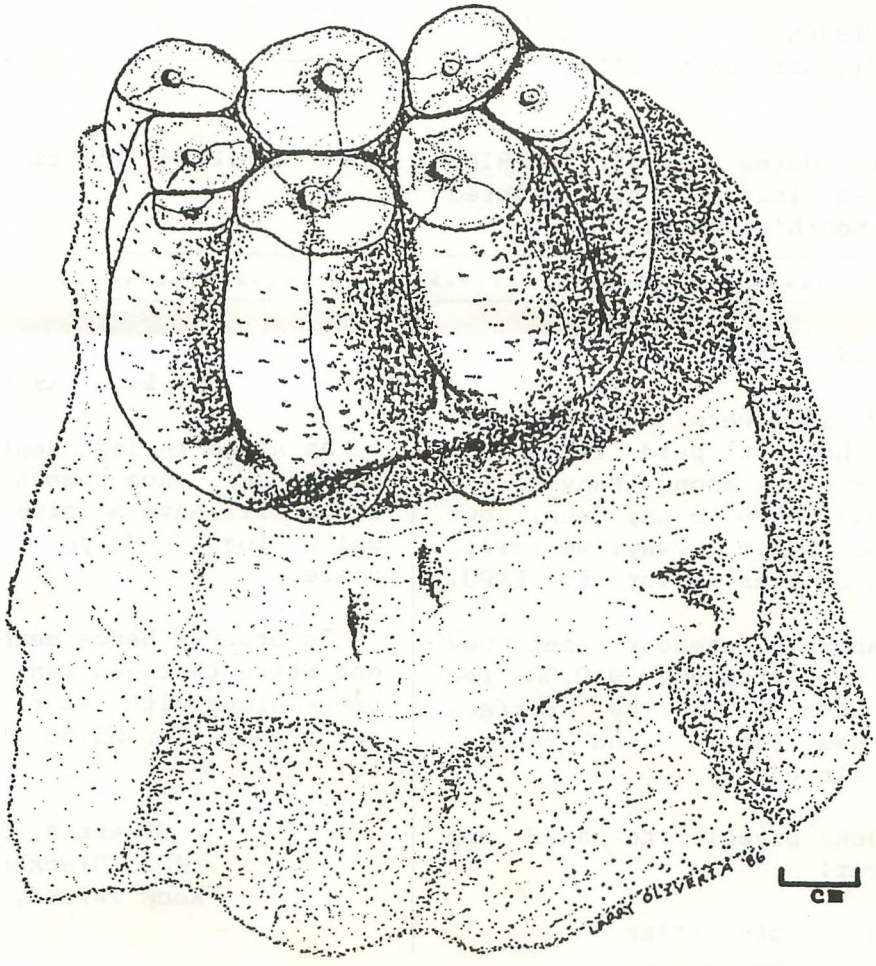
February, 1988



Desmoatylus hesperus Cheek Tooth

A LOVE OF FOSSILS BRINGS US TOGETHER

MARK YOUR CALENDARS

6 FEB MAPS MEETING--Geology Department
Monmouth College, Monmouth, IL

1:00 Board Meeting.
2:00 MAPS MEETING -- Larry Wiedman, Prof. Geology, Geology Dept., Monmouth College, Monmouth, IL, will be in charge of the program.

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5 MAR MAPS MEETING--Fryxell Museum, Augustana College, Rock Island, IL

1:00 Board Meeting.
2:00 MAPS Meeting.

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22 *APR EXPO X--FISHES
23 Western Illinois Univeraity,
24 Macomb, IL

*The EXPO dates are in APRIL. (March was inadvertently printed in last month's Calendar.)

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5 AUG "The Great Dinosaur Caper," the
6 Geology Club of San Antonio's first
7 annual National Field Trip.

Hayride on Friday, catered supper on Saturday, followed by a special guest speaker. The 3-day fee includes the listed events plus camping (flush toilets & pay showers) Friday, Saturday and Sunday. Fossil Trip July 31-Aug 5; Mineral Trip Aug 8-Aug 12. Deadline for money is May 31, with application and partial payment due March 31. No refund after March 31. See p. 8 for form.

1989 APRIL 14, 15, 16--EXPO XI, Macomb, IL

DUES ARE DUE

MAPS dues for 1988 were due December 31, so if you haven't paid them yet, please mail your check soon. Many of you like to wait until EXPO to pay dues, but since EXPO is so hectic anyway, we really would appreciate them prior to EXPO.

Overseas Members, remember that now you can choose the standard $10.00 fee (and receive your DIGEST by surface mail), or the new $25.00 (and receive your DIGEST by air mail).

Make all checks payable to MAPS and mail to Treasurer:

Sharon Sonnleitner
4800 Sunset Drive
Fairfax, IA 52228

MAPS BADGES

As noted in last month's DIGEST, MAPS Badges are once again available. The Badge will have a blue background with white logo and your name, city, and state.

To order a badge send the Name, City, and State that you want to appear on the Badge along with your complete address and a check for $5.50 (includes postage) to:

Stuart A. Leman
4030 Blackhawk Rd.
Rock Island, IL 61201

ABOUT THE COVER

Drawn by Larry L. Oliveria, this month's cover illustrates an adult cheek tooth of Desmoatylus hesperus Marsh. Larry, who is a teacher in San Jose, California, found this excellently preserved tooth of the very rare desmoatylian in California's Santa Cruz Mountains. See pages 3-5 for the full story.

THANK YOU, MADELYNNE

A special thank-you to Madelynne Lillybeck for her dedicated service to MAPS as DIGEST Editor for the past nine years. The DIGEST has been referred to as the Heart of MAPS, and Madelynne has done a terrific job of keeping it beating.

As Madelynne told you last month, she has decided that it's time to leave the post of Editor to allow more time to pursue other aspects of her hobby. However, she will still be Editor of this year's EXPO edition.

We really appreciate all the time and work that you have put into the DIGEST over the years, Madelynne. And we're happy that, although you've retired from the job of Editor, you'll still be an active and visible member of MAPS.

MAPS Board of Directors

GREETINGS

"The people are just wonderful!" Of all the comments I've heard about MAPS, that's the one that seems to be repeated most often, in various ways. It was that type of comment that most induced me to accept the position of DIGEST Editor.

Madelynne says people have been just great about submitting material for the DIGEST. I hope you will continue to be as generous to me, because it's your input that keeps the DIGEST interesting.

Because I have three children between the ages of six and thirteen, I am not always able to take part in as many MAPS activities as I would like; however, I plan to be at EXPO X at least one day, and I hope to get to know more of you, the people of MAPS, there and through DIGEST (and Treasury) correspondence.

Sharon

NATIONAL FOSSIL EXPOSITION X 1988

EXPO X is only a little over two months away now. Madelynne Lillybeck and Dennis Kingery, Rock Springs, Wyoming, are busy gathering papers for the EXPO edition of the DIGEST on this year's theme--FISH. Gil Norris has been putting together some VCR tapes. And many others are working on other aspects of EXPO. So plans are well under way for another great one.

Everyone is requested to make advanced reservations for tables, display space, and Union housing by MARCH 31, 1988. It's not too early to get them in now. See last month's DIGEST for more complete information.

EXPO HOURS: Apr 22--8:00 a.m.-7:00 p.m.
Apr 23--8:00 a.m.-5:00 p.m.
Apr 24--8:00 a.m.-3:00 p.m.

COLLECTOR HAS SELECT FOSSILS STOLEN

Larry Martin, 3987 Queen Anne Dr., Orlando, Florida 32809, reports that his home was burglarized in October. However, the only things taken were select fossils that he had collected over a 15 year period. This led police to conclude that the burglar is a FOSSIL COLLECTOR.

Larry has circulated a list of the missing fossils, along with discriptions and photographs, among many collectors and dealers. He is determined to make it very dangerous for the burglar to display, sell, or trade the fossils. His main concern is in recovering his fossils, not in seeing the burglar prosecuted.

Friends and fellow collectors have already come forward with information, some even with photographs of some of the stolen pieces. If you have any information that would help Larry recover his stolen treasures, please let him know.

HUNTING THE PECULIAR DESMOSTYLIANS

by Larry L. Oliveria
257 Bixby Drive, Milpitas, CA 95035

Subungulates, when considered as a whole, appear to be an unrelated group. Mammals like the tiny hyraces, dugongs, elephants and mastodonts, and the strange amphibious desmostylians make up this group. The fossil illustrated on this issue's cover is an adult cheek tooth of Desmostylus hesperus Marsh (found in Alum Rock Canyon, San Pablo group, Briones fm, Reef member, upper Miocene, Santa Clara Co., California).

Both shores of the Pacific boast the presence of remains from D. hesperus and the closely related Paleoparadoxia tabatai (Tokunaga). The teeth are unusual. The large teeth (like that illustrated) consist of up to eight large cusps which are closely packed and thickly enameled cylinders (Greek--Desmostylus = "bundle of sticks"). As in other members of this group, teeth migrated forward in the jaw throughout life. Canines and incisors made up several tusks and the lower anterior teeth resemble the shovel-tusked lower jaw of some mastodonts.

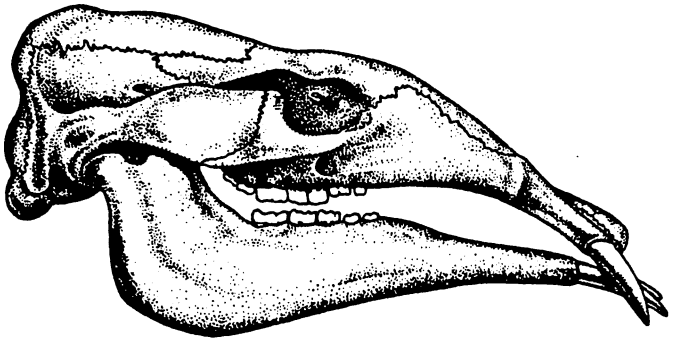

fig. 1: (From Romer, 1966)
Desmostylus about 32 inches in length

The figured skull (fig. 1) shows the typically low, long, and broad skull of D. hesperus. Since all known remains of D. hesperus are found in marine deposits, many investigators confused them with sirenians (sea cows). Reinhart correctly placed D. hesperus in its own order--Desmostylia. D. hesperus skeletons possess large well-developed limbs. Since their bodies are very hippo-like, it is assumed that they lived in and about shallow coastal waters. The ancestry of D. hesperus is wholly unknown but they appear to share descent with sirenians and proboscidians. Only future discoveries of new lower Eocene or Paleocene deposits in Africa will shed light on the common ancestor of later subungulate orders like Desmostylia.

The discovery and collection of this issue's "cover fossil" is an interesting story which I would like to relate. This fossil is unquestionably my "braggin' rock". In March of 1984 I was on my way home from teaching school and as I traveled down the freeway, in sight of the western edge of the Diablo Range east of San Jose, I decided to turn off on Alum Rock Avenue so I could go up Alum Rock Canyon to walk along the creek. It is great to walk along the creek and dissolve the day's stress and frustrations by watching for wildlife and looking for fossils in the rounded cobbles and boulders of the creek bed. (Ah, the fringe benefits of fossil hunting.)

Having previously collected partial, water-worn D. hesperus teeth in the upper Miocene of the Santa Cruz Mountains along the west side of the Santa Clara Valley (Silicon Valley to some), I knew their characteristics well. I also knew that remains were reported from the massive and well-indurated Miocene exposures in the Diablo Range along the east side of the Santa Clara Valley. This day, the last thing I expected to encounter in my wanderings was D. hesperus. (Isn't it always that way?)

About an hour before sunset I noted in the creek bed what appeared to be a worn

and fractured chert pebble protruding about 1cm from an otherwise featureless sandstone boulder measuring 1x1.5m and weighing approximately 300Kg. Upon closer examination I was shocked to see the typically striated, thickly enameled surface of what was obviously the upper medial posterior corner of a very large D. hesperus cheek tooth! I stood in disbelief at the thought that the remaining 95% of the tooth may be complete and perfectly preserved in the very hard fine-grained and well-cemented sandstone. One thought kept running through my mind, "How in the world am I going to collect this?"

The land where the fossil was found is part of a park operated and owned by the city of San Jose. I decided the find was important enough that I ought to find a ranger and inform him or her so that I could make arrangements to collect and prepare the tooth. The ranger I found was very excited when I explained the situation. He said there was a red-tape-laden way to arrange for collection, but he fortunately had a better idea. His response was, "What the Hell, let's go get it right now." I chose not to argue. Here was one land official who had no problem with Letuscollectus fossili.

Since the fossil was in a boulder, he brought a 15lb sledge. The boulder was at the bottom of the canyon near the edge of the creek about 10m below a nearby road, and the slope from the road to the creek was on the order of seventy degrees. The ranger felt certain that the winch on his 4x4 would solve that problem. Again, I chose not to argue. To make a long story short, the ranger broke up the boulder into smaller boulders. The one with the tooth was now about 68Kg worth. This block was winched up the bank to the road. (The cable slipped off once, and the chunk almost rolled over me into the creek.)

Muddy and tired, the two of us could barely lift the block into my pickup, but we did it as darkness fell. The ranger actually thanked me for letting him help. Once again, I chose not to argue. He wished me luck, and I was on my way with more than I could have bargained for. A couple of weeks and several cuts and bruises later, I had a beautiful addition to my display collection. I prepared it so that the roots remain in the blue sandstone matrix, while the crown leaps out in spectucular three-dimensional relief.

My primary field of study involves the decapods of the Western Slope, but creatures like the enigmatic Desmostylus hesperus are great fun to collect and study. The figured desmostylian skull and skeleton should give the reader a feeling for the large proportions of this amphibious clam-crushing (or plant-crushing--no one is sure) six-tusked subungulate. The tooth I collected was from a skull much larger than the one figured.

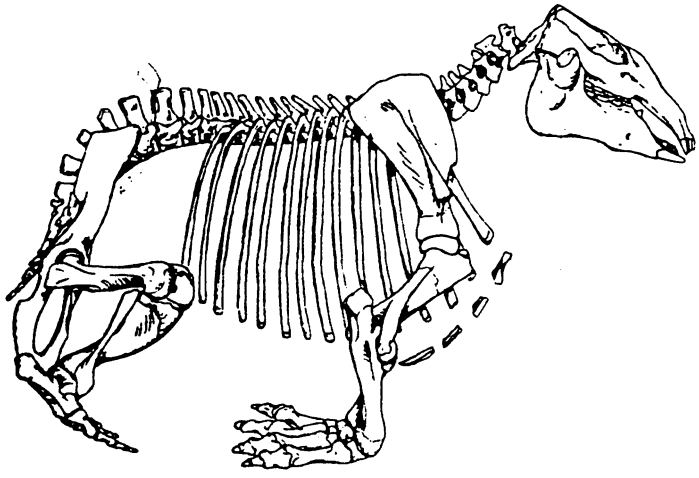

fig. 2: (From Romer, 1966)
Paleoparadoxia skeleton, 7.5 ft. in length

As an addendum, the reader may find of interest the fact that the figured skeleton of Paleoparadoxia (fig. 2) (what a great name--"ancient paradox) is on display at Berkeley's Museum of Paleontology. It was found during the excavation of the Stanford Linear Accelerator. Unfortunately, the head was smashed by a dozer. I have been lucky enough to find one excellent tooth of this very rare desmostylian in the Santa Cruz Mountains. Currently no one is working on Desmostylia, but I informed the vertebrate specialist at Berkeley anyway so that my specimen will be available for study should a worker choose to study again this fascinating order of extinct mammals.

REFERENCES

Reinhart, R.H. 1959. "A Review of the Sirenia and Desmostylia." Univ. California Publ. Geol. Sci. 36:1-146.

Romer, A.S. 1966. Vertebrate Paleontology. Univ. Chicago Press: p254.

FOSSILS SUGGEST LIFE BEGAN ON EARTH SOON AFTER ITS CREATION

From The Daily Dispatch, Moline, IL
July 3, 1987

The discovery of tiny fossils of organisms that lived up to 3.5 billion years ago is further indication that life arose relatively easily on Earth and could have arisen just as easily on a similar planet in another solar system, a scientist said.

The fossils were discovered by UCLA paleobiologist J. William Schopf and geologist Bonnie Packer, and their findings were reported in the journal Science.

Found in remote western Australia, the fossils are the first hard evidence that "life began relatively soon after the formation of the planet," Schopf said...

The fossilized organisms were a complex form of plant life "very much like modern pond scum" that apparently produced oxygen through photosynthesis, a chemical process triggered by sunlight.

Scientists believe that organisms capable of photosynthesis evolved sometime after earlier, simpler life forms...

"A great number of things had to take place before these organisms came about," said Schopf, who directs UCLA's Center for the Study of Evolution and the Origin of Life.

Since the relatively complex organisms must have been preceded by life forms older than 3.5 billion years, and since the Earth itself is only about 4.5 billion years old, life on Earth must have existed for more than 90 percent of the Earth's history," said Schopf...

The same series of events "could happen elsewhere, not necessarily in our solar system, but on a planet in another part of the universe that has the same sort of history, geological composition and proximity to the sun that Earth has," Schopf said.

Schopf said the algae-like organisms "changed the Earth's atmosphere and the entire environment" because their production of oxygen enabled other life forms to prosper.

Fossil Fuel

by Debbie Collum
c. 1986

I really dig fossils.
(Ooh! They're so neat.)
In all my spare time.
I'm just not complete
Unless I can dig
Every day in the dirt,
A day without fossils
Leaves me inert.
Crinoids and corals,
And blastoids, I might
Even find one of those
Trite trilobites.
They yell from their shell,
"Come to me, come to me,"
And there in the rocks
Will a brachiopod be.
Devonian, Cambrian,
Silurian, I'm
Attracted to all of them
All of the time.
I really love fossils;
(They're really quite cool)
You might say that I
Run on cool "fossil fuel."

FOSSILS FLESH OUT EARLY VERTEBRATES

from Science News
January 9, 1988

The oldest known vertebrates, a collection of remarkably well-preserved remains of 30 jawless fish, have been discovered by an international team of paleontologists in the mountains of southern Bolivia, according to an announcement last week by the National Geographic Society in Washington, D.C., which funded the expedition.

The fossils were embedded in large stone slabs that date to about 470 million years ago, when much of present-day Bolivia was covered by ocean. At least 10 of the specimens are virtually complete, with even the tail sections intact, says expedition director Philippe Janvier of the French National Research Center in Paris...

These ancient fish were probably poor swimmers that avoided deep water, notes Janvier. Bony plates protected the rounded head of the creature. Its body was covered with thin scales that ended near a narrow tail.

The fossil fish, which are up to 18 inches long and 6 inches wide, appear to represent a new genus, according to Janvier. He and his co-workers have dubbed the genus Sacabambaspis, after a village located near the fossil discovery.

Fragmentary remains of fish from about the same time or slightly later have been found in Australia and North America. Those found in Australia closely resemble the Bolivian fossils, says Janvier, while the North American specimens most likely belong to a different group of marine species.

Another vertebrate paleontologist familiar with the new fossils, Hans Peter Schultz of the University of Kansas in Lawrence, says they are similar to several ancient fish imprints previously found in Australian sandstone. The imprints are almost as complete as the new fossils, he notes, and date to nearly 470 million years ago. However, no fossil remains were found with the impressions.

"The Bolivian find shows that there was a broader variety of marine forms at that time than was expected," says Schultz. "Since fossils from around 470 million years ago are now known to be widespread, there must be a long vertebrate history before that time that we have no record of."

Jawless fish, whose modern counterparts include lampreys and hagfish, have been considered the earliest known vertebrates, or creatures with a backbone, for more than a decade. The bony spine typical of most vertebrates is replaced in jawless fish by a flexible rod similar to cartilage.

BOOK REVIEW

by B.L. Stinchcomb
Geology Dept., St. Louis Community College
St. Louis, MO 63135

It might be brought to the attention of MAPS members a recent publication on the fascinating topic of Precambrian animal fossils. As most serious fossil affectionatos know, fossils in the Precambrian are rare and animals particularly so. The Dawn of Animal Life, a biohistorical study by Martin F. Glaessner, University of Adelaide, South Australia, is a relatively nontechnical expose of the bizarre and even mysterious late Precambrian Ediacarian faunas. The treatment in the book of these faunas is worldwide; however, more emphasis is placed on the Australian occurrences which were the first discovered and are still probably the best preserved. Coverage of Precambrian animals is fairly complete; however, the problem and controversy of just exactly how far back into the Precambrian animals occurred is seemingly avoided. Mid-Precambrian fossil animal occurrences, such as those discussed in Kauffman and Steidmann, Journal of Paleontology, Vol. 55, 1981, are strangely not discussed. Even though the work appears in some ways a bit biased, it represents the most complete discourse available under one cover of these fascinating and important fossils. The book is available in paperback from Cambridge University Press, 32 East 57 St., New York, NY 10022. Cost $15.96.

ADVERTISING SECTION

CORAL THIN SECTION WORKSHOP: On May 21 & 22, 1988, Jim Cocke and Terry Berkland will run a workshop on how to make and project coral thin sections in a 35 mm projector. Enrollment is liminted, so write soon. For further information, write to Jim Cocke, Geology Department, Central Missouri State Univerasity, Warrensburg, MO 64093.

ANNOUNCING:

The Delaware Valley Paleontological Society has announced its publication of the third issue of The Mosasuar, a paleontological journal, in November 1986. The Mosasaur has been designed to bridge the gap between the amateur and professional communities, publishing articles of interest to all. Volume III of The Mesosaur is approximately 190 pages in length and sells for $15.00.

The journal is published on an occasional basis, and the selling price of The Mosasaur varies from issue to issue. Current subscribers will be notified when the next issue has been published. See page 8 for order form.

The Mosasaur solicits manuscripts from all members of the paleontological community. For information and instructions regarding manuscript preparation, please contact:

William B. Gallagher, Editor
The Mosasaur
Science Bureau
New Jersey State Museum
205 W. State St.
CN-530
Trenton, NJ 08625

Please ADD The Following New Members to Your Directory

LARRY DECINA
719 Windermere Ave.
Drexel Hill, PA 19026
215-259-5279

MARTIN SCHULER
746 Ash Ave.
Chula Vista, CA 92010
619-426-8987

Material and Process Analyst. Will trade. Major interest Ammonoidea, Pterosaura, Mesozoic Vertebrate Paleontology. Wants to correspond with others interested in Paleontology.

THOMAS F. STECKEL
4175 Giles Rd.
Chagrin Falls, OH 44022
216-247-6681

Research Chemist. Will not trade. Major interest everything. Member of The Fossil Society of the Cleveland Museum of Natural History. Is lifelong fossil enthusiast and current President of above club. Wants liturature and to attend show.

ERIC WICKSTROM
Rt. 1, Box 292
Purcellville, VA 22132

Relatively new, amateur fossil collector. Interested in hearing of good examples of a wide variety of specimens.

GEORGE ZERKICH
17176 Matinal Road
San Diego, CA 92127
619-487-7514

Teacher. Major interest to collect and learn more about fossils to share with his students. Wants to gain information to increase his understanding of fossils.

Please Note the Following CHANGES OF ADDRESS:

DAVID B. BATSELL
124 S. Bunker Hill Dr.
Junction City, KS 66441

JOHN H. HUNTER II
224 S. Bouziden
Moore, OK 73160

RICHARD S. TODD
RR #2
Princeton, IL 61356

OVERSEAS CHANGES:

ANDREAS E. RICHTER
Ifenstrasse 8 1/2
D-8900 Augsburg
West Germany
0921-662988

Please Note the Folowing CORRECTIONS:

BONE VALLEY FOSSIL SOCIETY, INC.
2704 Dixie Road
Lakeland, FL 33801
813-665-3426 OR 813-681-4350

RANDY & LINDA FAERBER
7854 Darnell
Lenexa, KS 66216
916-268-6786

Data Security Administrator/Communications Network. Analyst. Will trade but have limited prepared material. We are interested in comparative paleontology but also collect ammonites, echinoids, crinoids, corals, petrified wood and plant imprints. We even can get off on brachs, pelecypods and gastropods. I guess we've never met a fossil we didn't like.

Please fill out the following application with appropriate fees and mail to:

National Field Trip
218 Sunnycrest
San Antonio, TX 78228

Please check one of the following blocks:		Adult fee	Child fee
Three days only	August 5,6 & 7, 1988	$37.00	$23.00
Three Days & Fossil Trip	July 31 - August 7, 1988	47.00	33.00
Three Days & Mineral Trip	August 5-12, 1988	47.00	33.00
Three Days & Both Field Trips	July 31- August 12,1988	57.00	43.00

Name _____

Address _____

City (ZIP) _____

Phone _____ Club Affiliation _____

I am paying $ _____ for _____ adults

$ _____ for _____ children

$ _____ Total or a partial payment of $_____.
my balance due May 31,
$_____.

ORDER FORM FOR VOLUME III

Checks/bank drafts/international money orders *in U.S. Dollars* should be made payable to DVPS and sent to:

THE MOSASAUR
c/o Stephen J. G. Farrington
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The Mid-America Paleontology Society (MAPS) was formed to promote popular interest in the subject of paleontology, to encourage the proper collecting, study, preparation, and display of fossil material; and to assist other individuals, groups and institutions interested in the various aspects of paleontology. It is a non-profit society incorporated under the laws of the State of Iowa.

Membership in MAPS is open to anyone, anywhere who is sincerely interested in fossils and the aims of the Society.

Membership fee: January 1 through December 31 is $10.00 per household. Institution or Library fee is $25.00. Overseas fee is $10.00 with Surface Mailing of DIGESTS OR $25.00 with Air Mailing of DIGESTS.

MAPS meetings are held on the 1st Saturday of each month (2nd Saturday if inclement weather). September, October, May, July, and August meetings are scheduled field trips. The June meeting is in conjunction with the Bedford, Indiana Swap. November through April meetings are scheduled for 2 p.m. in the Science Building, Augustana College, Rock Island, Illinois. One annual International Fossil Exposition is held in the Spring.

MAPS official publication, MAPS DIGEST, is published 9 months of the year--October through June.

CYATHOCRINITES

MID-AMERICA PALEONTOLOGY SOCIETY

Mrs. Sharon Sonnleitner
MAPS DIGEST Editor
4800 Sunset Dr.
Fairfax, IA 52228

Dated Material - Meeting Notice

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Allyn & Dorris Adams
612 W. 51st Street
Davenport, IA 52806
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